

A Review of the Fishes of the Family *Chlorophthalmidae* found in the Waters of Japan

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(With 4 figures)

In the present paper is given a review of fishes of the family Chlorophthalmidae found in the deep waters of Japan. The specimens referable to two genera and four species with the annexed addition of two subspecies, of which one species and two subspecies seem to be new to science, are chiefly secured from the Mimase Market (Kôchi City), Kôchi Prefecture and the Chôshi Market, Chiba Prefecture. All are secured by a kind of the small fishing motor-boat known as "kisen-teguri", operated at grounds some 100 meters deep.

In the following descriptions the body length is measured from the anterior end of upper jaw to the upper insertion of caudal; the length of head from the anterior end of upper jaw to the posterior end of opercle; the number of caudal rays is counted excluding unbranched ones; the color notes all are based on the material preserved in formalin.

All the specimens except two of *Chlorophthalmus albatrossis borealis* from Chôshi, which are collections of the Department of Fisheries, Kyôto University, are deposited in the Biological Laboratory, Liberal Arts Faculty, Kôchi University, Kôchi City, Japan.

Before proceeding further, I wish to express my hearty thanks to Dr. Shigeo Tanaka, ex-professor of the Tokyo University, who offered kind advice in various ways.

KEY TO THE RECENT GENERA OF *CHLOROPHTHALMIDAE* OF THE WORLD

a¹.....Body much slender; head depressed; teeth markedly developed; ventrals apart from each other.....

.....*Bathysauropsis* (REGAN, 1911)

(Genotype: *Chlorophthalmus gracilis* GÜNTHER)

syn. *Bathysaurops* (FOWLER, 1938 (1940))

(Genotype: *Bathysaurops malayanus* FOWLER)

a².....Head compressed; ventrals usually close together, inserted below base of dorsal; teeth on jaws, vomer and palatines, very small, sharp, usually minute teeth on tongue.....

Chlorophthalmus (BONAPARTE, 1940)

(Genotype: *Chlorophthalmus agassizii* BONAPARTE)

syn. *Hyphalonedrus* (GOODE, 1880 (1881))

(Genotype: *Hyphalonedrus chalybeius* GOODE)

Parasudis (REGAN, 1911)(Genotype: *Chlorophthalmus truculentus* GOODE & BEAN)1. *Bathysauropsis gigas* (KAMOHARA)

Oni-aome-eso (Japanese name)

Bathysaurops gigas KAMOHARA, Repts. Kochi Univ. Nat. Sci. No. 3, 1952, p. 14, fig. 11. Mimase.

D. 10; A. 10; P. 16; V. 9; C. 16; L. 1. ca 50; gill-rakers on first arch rudimentary; the patches $3+7=10$. Maxillary reaches to below anterior $\frac{4}{5}$ of eye. Many large teeth on tongue in two series. Pectoral extending below middle of dorsal base. Vent much nearer to ventral than to anal; adipose fin above anterior part of anal base; distance of adipose fin from dorsal equal to that between the latter and posterior margin of eye.

A single specimen, 285 mm long, from Mimase

KEY TO THE SPECIES OF *CHLOROPHTHALMUS* OF JAPAN

a¹.....Eye very large, its diameter greater than snout; body cylindrical or subcylindrical anteriorly.

b¹.....Scales 46 in lateral line, between lateral line and insertion of dorsal $2\frac{1}{2}$; gill-rakers on first arch 23; ventrals apart from each other and shorter than pectoral.....*oblongus*, sp. nov.

b².....Scales 53-57 in lateral line; between lateral line and insertion of dorsal $8\frac{1}{2}$; gill-rakers on first arch 17-22; ventrals close together.

c¹.....Head 1.7 in head width, immediately behind eye; eye 1.5 in snout.....*albatrossis*

c².....Head 1.9 in head width, immediately behind eye; eye 1.2 in snout.....*albatrossis borealis*, subsp. nov.

a².....Eye rather large; body and head strongly or rather strongly compressed.

d¹.....Body and head strongly compressed; snout greater than eye-diameter*acutifrons albatrossis*

d².....Body and head rather strongly compressed; snout subequal to eye-diameter; dorsal and caudal margined with black; ventral with a transverse black band.....*acutifrons nigromarginatus*,

2. *Chlorophthalmus oblongus*, sp. nov. (Fig. 1)

Naga-aome-eso (Japanese name)

Chlorophthalmus nigripinnis (not of GÜNTHER) KAMOHARA, Repts. Kochi Univ. Nat. Sci. no. 1, 1951, p. 1-Ibid., no. 3, 1952, p. 14 and p. 105.

D. 10; A. 8; P. 19; C. 11; scales in lateral line 46; between lateral line and insertion of dorsal $2\frac{1}{2}$; gill-rakers on first arch $4+19=23$. Head 3.5 in length; depth 6.3; eye 2.8 in head; interorbital 7.3; snout 4.1; depth of caudal peduncle 4.7.

Body elongate, subcylindrical, tail much compressed behind. Head large, with evenly and gently curved profile. Snout short, broadly rounded, when viewed from above,

its length much shorter than eye-diameter. Eye very large, high, lateral; interorbital space narrow, slightly concave; nostrils two on either side, close together, in front of eye; maxillary expanded distally, extending to vertical through anterior margin of pupil. Mouth large, oblique, upper jaw slightly included; teeth small, cardiform, in bands on jaws.

Pectoral long, slightly longer than head; ventral inserted below middle of base of dorsal, much shorter than pectoral; adipose fin very small, inserted above last ray of anal; caudal forked. Scales large, cycloid; cheeks with two rows of scales; the other part of head naked; lateral line straight, running along middle of body.

Color silvery, with some dark spots on side of body. Dorsal and ventral dusky terminally; each lobe of caudal with a longitudinal dark band.

Described and figured from a specimen 93 mm long as measured to tip of upper lobe of caudal, collected at the Mimase Market, no. 1741, Biological Laboratory, Kochi University.

The dimensions of ten other specimens, 87–100 mm long from the same locality, are read as follows: Head 3.3–3.7 in length; depth 5.8–6.5; eye 2.9–3 in head. In some specimens color of dorsal and ventral uniform pale, not dusky terminally.

The present species is closely allied to *Chlorophthalmus nigripinnis* GÜNTHER from off Twofold Bay, but differs from the latter in the following features:

<i>nigripinnis</i>	<i>oblongus</i>
Scales in lateral line 50; between lateral line and insertion of dorsal $4\frac{1}{2}$.	Scales in lateral line 46; between lateral line and insertion of dorsal $2\frac{1}{2}$.
Pectoral shorter than ventral.	Pectoral longer than ventral.
Distance of vent from ventral equal to three times length of snout.	Distance of vent from ventral equal to length of snout.

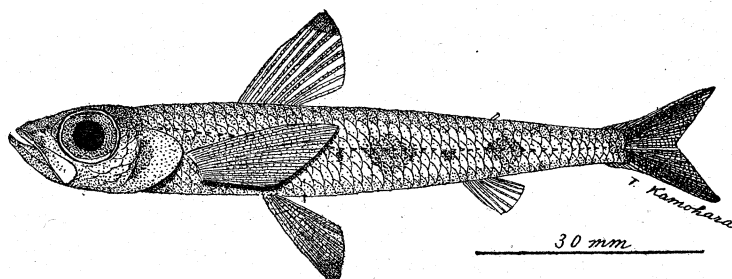


Fig. 1 *Chlorophthalmus oblongus*, sp. nov.

3. *Chlorophthalmus albatrossis albatrossis* JORDAN & STARKS (Fig. 2, A)
Aome-eso (Japanese name)

Chlorophthalmus albatrossis JORDAN & STARKS, Bull. U. S. F. Commission, xxii, 1904, p. 579, fig. 1. Sagami Bay.

D. 11; A. 8; L. 1. 53-57; gill-rakers on first arch 3-4+16-18=19-22. Head 3.6-3.9 in length; depth 5.4-6.3; eye 2.5-2.7 in head; interorbital 7.2-8.7; snout 3.2-4; head 1.7 in head width, immediately behind eye; eye 1.5 in snout.

Abundant. Length, 60-150 mm.

4. *Chlorophthalmus albatrossis borealis* KURONUMA & YAMAGUCHI (Fig. 2, B)

Aome-eso-damashi (New Japanese name)

Chlorophthalmus borealis KURONUMA & YAMAGUCHI, Zool. Mag., liii, no. 5, 1941, p. 272. Choshi Fish Market.

Head 1.9 in head width, immediately behind eye; eye 12 in snout.

The present subspecies is closely allied to *Chlorophthalmus albatrossis* JORDAN & STARKS. KURONUMA and YAMAGUCHI's original description of *borealis* in 1941 says as follows: "From *C. albatrossis* the present form is only separable by the measurements of the head and eye, suggesting these two forms more closely related than the other."

According to my own study of three specimens, one from Mimase and two from Choshi, the present subspecies is distinguished from *albatrossis* in having much more compressed body and slightly longer snout.

Judging from these slight differences it seems to me that *C. borealis* should stand as a subspecies of *C. albatrossis* rather than as a distinct species.

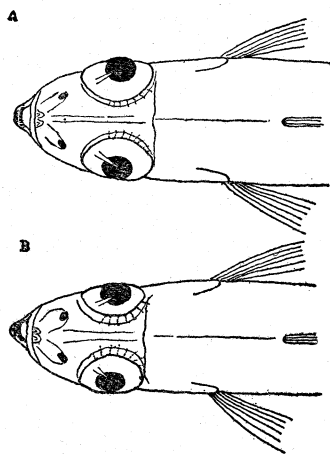


Fig. 2, A. *Chlorophthalmus albatrossis albatrossis* JORDAN & STARKS

" B. *Chlorophthalmus albatrossis borealis* KURONUMA & YAMAGUCHI

5. *Chlorophthalmus acutifrons* HIYAMA (Fig. 3, B)

Togari-aome-eso (Japanese name)

Chlorophthalmus acutifrons HIYAMA, Jap. Journ. Zool., ix, no. 1, p. 171, fig. 2. Kumano-nada.

D. 11; A. 9-10; L. 1. 53-57; gill-rakers on first arch 2+14-17=16-19. Head 3.1-3.5 in length; depth 4.3-4.7; eye 3.5-3.8 in head; snout 2.9-3; interorbital 9-10.3. Color grayish all over; several dusky cloud-like markings present all over back and sides.

Rather rare. Length, 160-300 mm.

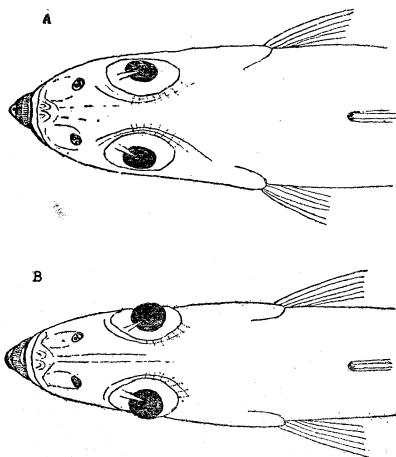


Fig. 3, A. *Chlorophthalmus acutifrons nigromarginatus*, subsp. nov.
B. *Chlorophthalmus acutifrons* HIYAMA

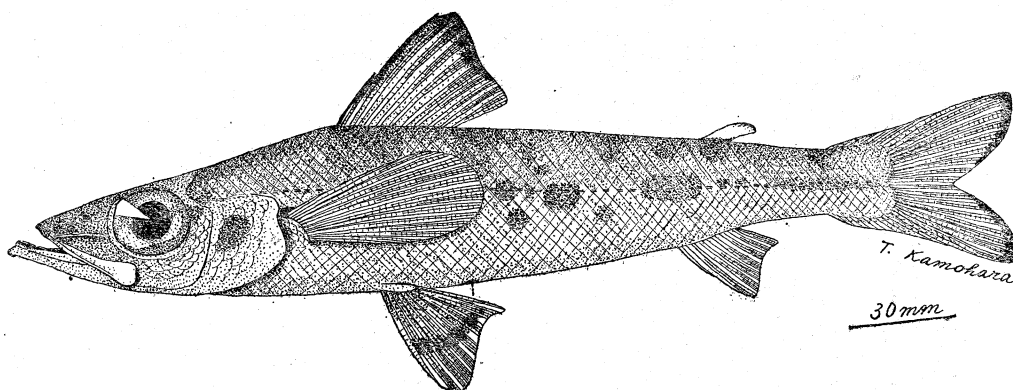


Fig. 4 *Chlorophthalmus acutifrons nigromarginatus*, subsp. nov.

6. *Chlorophthalmus acutifrons nigromarginatus*, subsp. nov. (Fig. 3, A; Fig. 4)

Tsumaguro-aome-eso (new Japanese name)

D. 11; A. 9; P. 16; C. 17; scales 53 in lateral line; between lateral line and insertion of dorsal $6\frac{1}{2}$; gill-rakers on first arch $4+16=20$. Head 3.2 in length; depth 4.8; eye 3.2 in head; interorbital 6.4; snout 3.2; depth of caudal peduncle 3.9.

Body elongate, much compressed; back in adult somewhat elevated, especially at the anterior region of dorsal; but in young back with evenly and gently curved profile; snout equal to eye-diameter in length.

Color grayish; several dark cloud-like markings on side of body; dorsal and caudal margined with black; ventral with a transverse black band at the middle region.

Described and figured from a specimen, 277 mm long, collected at the Mimase Market, no. 1541, Biological Laboratory, Kochi University.

The dimensions of six other specimens, 98-205 mm long, from the same locality are read as follows: Head 3.3-3.4 in length; depth 4.9-5.1; eye 2.8-3. in head; inter-

orbital 7-10.2; snout 3.3-3.5; depth of caudal peduncle 3.1-3.8.

The present subspecies is closely allied to *C. acutifrons*, but differs from the latter in having smaller head less compressed, body more elongated, less elevated, snout subequal to eye-diameter in length, and dorsal and caudal margined with black.